A TRAINING STRATEGY

Bodybuilding is just that—building. Athletes are engineers, shaping the materials they were born with. This work requires discipline and study, because efficient training is a science.

Using the principles of abdominal biomechanics, we developed the highly successful training system described in **Legendary Abs** and **SynerAbs**. It's a solid basic program, a precision-made tool.

Ultimately, though, to use a tool like **Legendary Abs** with **maximum** effectiveness, you must develop your own working understanding of the principles on which it is based.

In this course, we'll explain the anatomy and mechanics of the abdominals in clear detail and show you how to use this information to perfect your exercise technique. You will be able to surpass previous limits—and achieve the ultimate, fine-tuned ab workout.

1+1=3

Creating a whole greater than the sum of the parts. This is synergism.

Think of a painting—the Mona Lisa, for instance. If you scraped the paint off that canvas you'd have the "sum" of the elements: a pile of paint. But it certainly wouldn't be a painting. The artist, however, has taken those elements—blue, red, yellow—and combined them to create something *far greater than their sum*.

Athletic excellence requires training with an artist's touch. The concept of synergism can be applied at every level of physical conditioning, from an individual rep to an overall routine. To do this, you must continually ask: What are the elements of the task at hand, and how can they best be put together?

The elements we will be working with include muscle anatomy, exercise selection, form, focus, exercise order, timing, and schedule. When these elements are optimized—and optimally combined—you will be working at your peak, reaping maximum synergistic benefit.

THE ABDOMINAL MUSCLES

To isolate one muscle group and train it to the fullest, you need some basic information. Where do the muscles attach? How do they act? Along what lines of force? What other muscles support this action?

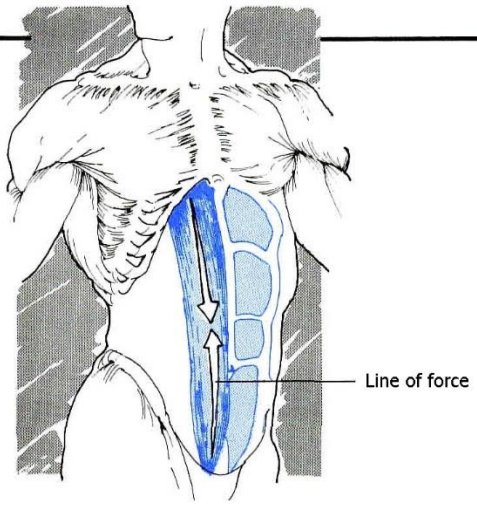
The more precise your understanding, the greater your potential for gains—it's that simple. The small adjustments of form and focus you make based on this knowledge can translate into major increases in training intensity.

As a starting point, let's deal with the **anatomy** of the abdominals.

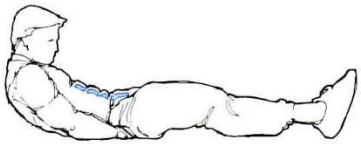
Location and Function

The abdominals represent one of the body's ingenious design trade-offs, addressing the need for both protection and flexibility. Obviously, the rib cage serves the vital function of protecting the heart and lungs, yet if the ribs continued down to the pelvis, enclosing the other organs, we would be stuck with a skeleton that allowed very little mobility.

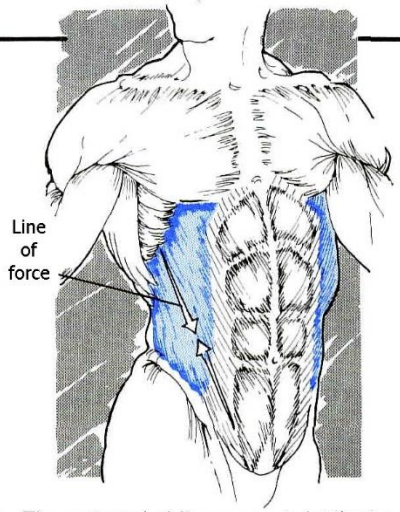
The abdominals are an elegant solution to this problem. Arranged in layers, each with fibers running in a different direction, they afford both protection and flexibility.



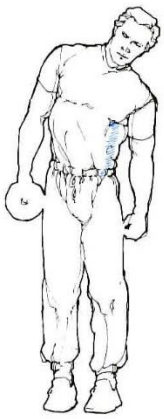
a. The rectus abdominus bends the trunk by drawing pelvis to rib cage.



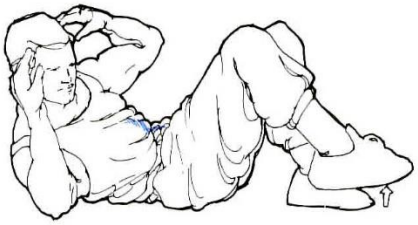
Trunk flexion



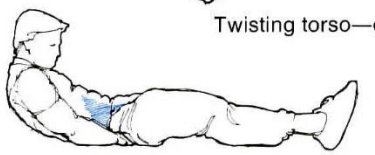
b. The *external obliques* can twist the trunk if only one side contracts, or help the rectus bend the trunk if both sides contract.



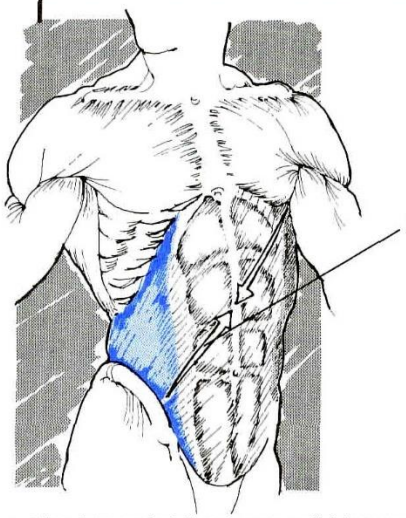
Trunk lateral flexion—one side contracting



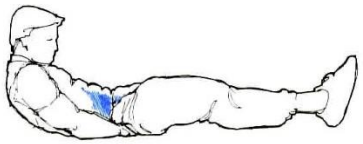
Twisting torso—one side contracting



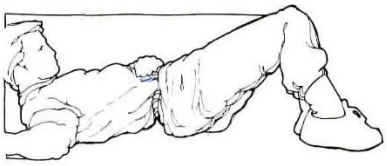
Trunk flexion—both sides contracting



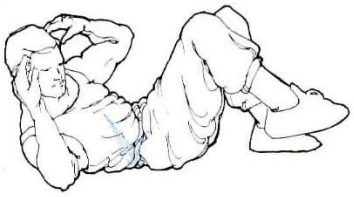
c. The *internal obliques* can pull hip toward centerline or help the exernal obliques twist the torso if only one side contracts, or help the rectus bend the trunk if both sides contract.



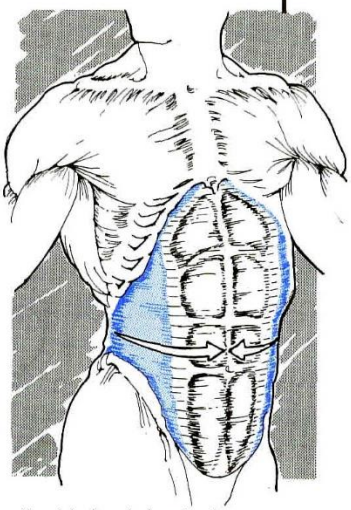
Trunk flexion—both sides contracting



Lifting hip—one side contracting



Twisting torso—one side contracting



d. The *transversalis* aids in abdominal compression; it is not involved in movements of the torso.

IRENE DI CONTI-MCKINNISS

Fig. 1

There are four muscles in the abdominal group:

RECTUS ABDOMINUS
EXTERNAL OBLIQUE
INTERNAL OBLIQUE
TRANSVERSALIS

Rectus Abdominus. Forming the two segmented vertical bands, the rectus is the most prominent of the muscles. It arises from the crest of the pubic bone and runs upward, inserting on the cartilage of the lower ribs. When contracting, it draws the pelvis and the rib cage closer together. This is called *trunk flexion*.

For training purposes, the rectus is divided into **upper** and **lower abs**, each composed of two pairs of "lumps" (Fig. 1-a).

External Obliques. Two broad, flat muscles wrapping the sides and front of the abdominal region, the external obliques run in the direction your fingers point when you put your hands in your pockets. They provide rotational stability for the torso during many major body exercises. And since they run at a diagonal, they can either cause the torso to bend to the side and twist (*trunk lateral flexion and rotation*), if only one side of the obliques contract, or bend straight forward (*trunk flexion*, again), if both sides contract (Fig. 1-b).

Internal Obliques. The next layer underneath the externals, the fibers of the internal obliques run at a ninety degree angle to those of the external obliques. When acting alone on one side, the internal oblique draws the hip "up" towards the centerline. However, the main job of the internals is to act in concert with the externals to facilitate twisting motions. The internals also help compress the abdomen, aiding in a variety of internal processes like forced exhalation, coughing, elimination, and childbirth (Fig. 1-c).

Transversalis. Often called the *transversus* muscle, the transversalis runs horizontally across the abdominal region, wrapping around from back to front like a girdle, fusing at the centerline. Like the internal obliques, it compresses the abdomen (Fig. 1-cl).

Together, these four criss-crossing layers of muscle form the **abdominal wall**. The fiber arrangement provides maximum protection against penetration and renders possible an infinite variety of twisting and bending motions of the torso.

Range of Motion

Another important aspect of the abs' anatomy is their **range of motion**. This is a key consideration in selecting exercises to focus on them. **The entire range of trunk flexion the abs can initiate is only about thirty degrees.**

To look at this another way:

When you lie flat on your back, your upper and lower body form a straight line—an angle of 180 degrees. By contracting, the abdominals can reduce this angle to 150 degrees (Fig. 2).

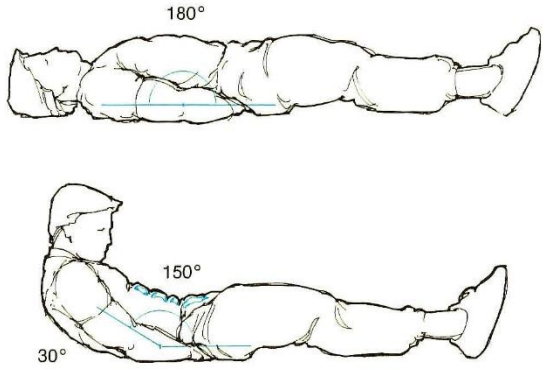


Fig. 2 Abdominal contraction reducing angle to 150°.

Notice the hinge point for this action is in the lower spine.

Any "bending" beyond this point—any further trunk flexion—must involve (1) other muscles, and (2) additional hinge points, either at the hip or between the higher vertebrae.

Extreme trunk flexion, therefore, involves proportionally **less** abdominal effort than partial trunk flexion does. This explains the inefficiency of many exercises which appear to work the abdominals. They either require too wide a range of motion, or they are performed at an angle outside the abs' range.

Roman Chair Sit-Ups is one example of an exercise that ignores the mechanical limitations of the abs. In this exercise, the person sits, anchors his or her feet, leans backward slightly and rocks up and down across a narrow range, hinging at the hips (Fig. 3)

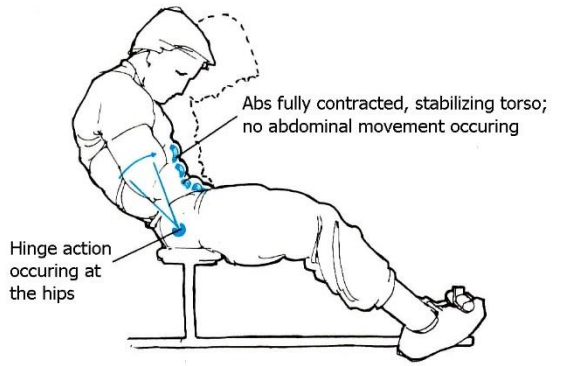


Fig. 3 Roman Chair Sit-Ups

This is inefficient in the same way trying to work your forearms by doing bicep curls would be. Sure, the forearms are *involved* during a curl, but all they're doing is gripping the bar. The main muscle responsible for the movement—the *prime mover*—is the biceps. Same with Roman Chair Sit-Ups: Although the abdominals do contract, they are acting only as *stabilizers*, and **are not responsible for the motion**. As an abdominal exercise, Roman Chair Sit-Ups are ninety percent wasted effort.

Summary of Abdominal Anatomy

MUSCLE:	**Rectus Abdominus**
LOCATION:	**Runs from ribs to pubic bone**
FUNCTION:	**Flexes trunk**
MUSCLE:	**External Oblique**
LOCATION:	**Wraps from back to front, fibers running diagonally downward**
FUNCTION:	**One side contracting—Bends torso to the side**
	One side contracting—Rotates torso, bringing shoulder of the same side forward
	Both sides contracting—Flexes trunk
MUSCLE:	**Internal Oblique**
LOCATION:	**Wraps from back to front, fibers running diagonally upward**
FUNCTION:	**One side contracting—Draws hip towards centerline**
	One side contracting—Rotates torso bringing shoulder of the opposite side forward
	Both sides contracting—Flexes trunk
	Also Abdominal compression, serving internal processes
MUSCLE:	**Transversalis**
LOCATION:	**Wraps from back to front, fibers running horizontally**
FUNCTION:	**Abdominal compression, serving internal processes**

- **Notice that nowhere do the abdominals attach to the legs. They originate from the ribs, spine, hips, and pubic area, wrapping and crossing the middle body from all angles. The abdominals cause movements of the pelvis in relation to the torso of about thirty degrees or less, and they also act as stabilizers in all planes during major body motions.**

FUNCTIONAL STRENGTH AND APPEARANCE

There are many possible goals of ab training, most of which boil down to *improved performance* in a sport that requires abdominal strength, *enhanced appearance*, or both.

From a training standpoint, improved performance requires increased **functional strength**; enhanced appearance calls for improved **definition** and, possibly increased size.

Your individual needs will dictate certain aspects of your training strategy.

Functional Strength

Functional strength refers to the ability to apply strength developed through exercise in daily activity. Abdominal functional strength mainly depends on rectus, and external and internal oblique development.

The transversalis functions only in abdominal compression; it does not move the skeleton at all, nor contribute to abdominal definition. Abdominal programs that list the "four aspects of the abs" (the four muscles), and claim you must work all "aspects" to insure complete development are promoting an irrelevant half-truth.

The best strategy in training for functional strength is to concentrate on the rectus, and to a lesser extent, the internal and external obliques. **Functional strength training should rely on free weights and bodyweight exercises to encourage the muscles to interact in ways that reflect their role as stabilizers in major body movements**.[1]

[1]This is one reason (among others) why the Nautilus Ab machine is not ideal. It does not require the obliques to provide rotational stability.

Appearance: Definition and Size

Appearance depends solely on the rectus and external obliques, since they are the only muscles visible from the surface.

Most people want good tone and definition without massive gains in size. If this sounds like you, beware of using a progressive overload (ever-increasing amounts of weight) in your abdominal program. In time, a progressive overload can produce massive, protruding abs, which look like a muscular pot belly. To achieve good tone and definition without a huge size increase takes a high-intensity workout— without ever-increasing resistance.

There are cases, though, where size might be a priority. If you are working towards a generally massive physique, substantial ab development may be necessary for symmetry. You can integrate a graduated weight increase into the routines in **Legendary Abs** by following the suggestions in the Other Training Recommendations section on page 23.

Cuts. The "cuts" which divide the rectus abdominus into four pairs of lumps are caused by three bands of connective tissue called the tendinous intersections, which cross the face of the muscle. Their exact arrangement is something you're born with. Abdominal exercise will affect the overall size of the lumps, but not their locations or shapes (Fig. 4).

Abdominal Fat. Although the question of abdominal fat is discussed in Legendary Abs, the information bears repeating here because the thickness of the fat layer has a big impact on abdominal definition. Abdominal exercise will have no effect on fat. People who perform ab exercises without addressing the problem of excess stomach fat may develop well-toned abdominals, but the results won't be visible.

The only effective way to lose excess abdominal fat—or any fat—is with regular aerobic exercise. A program involving some form of aerobic work—running, walking, swimming, jumping rope, aerobic dance—coupled with a low-fat/low calorie diet is the ideal companion to ab exercise to achieve a lean, well-toned look.[5]

- **In most cases, training for functional strength or appearance dictates the same training strategy. However, optimum functional strength requires attention be paid to the internal—as well as external—obliques.**

- **Only if you are trying to build massive size should you train with increasing weight loads—otherwise bodyweight (or bodyweight plus a small amount of weight) is sufficient.**

- **Abdominal definition comes as much from the fat you don't have, as the muscle you do have. To see maximum abdominal definition, address any excess fat through a combination of aerobic exercise and attention to diet.**

ANATOMY AND EXERCISE SELECTION

Now let's consider the ab muscles one by one, examining their individual actions and describing motions best suited to each.

Rectus Abdominus

upper rectus (upper abs)
Basic motion: draws rib cage to pelvis

lower rectus (lower abs)
Basic motion: draws pelvis to rib cage

Most muscles are attached in such a way that one end is clearly the fixed end and the other, the moving end. The fixed end of the biceps, for instance, is the end that originates at the shoulder. The biceps' moving end inserts on the forearm. This arrangement is clear because we almost always perceive the forearm as moving in relation to the body, and not the other way around. When doing a bicep curl, for example, the shoulder (at the fixed end of the biceps) remains stationary while the forearm (at the moving end) is pulled upward by the contraction of the biceps (Fig. 5).

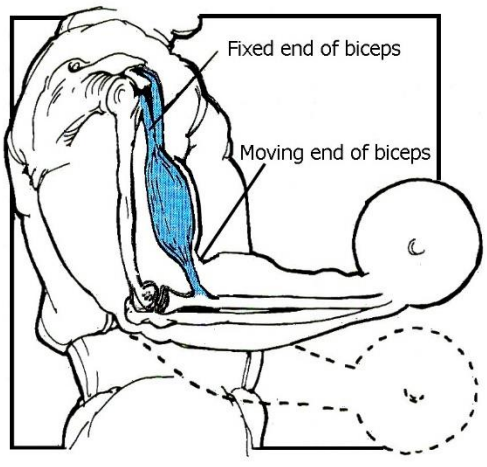


Fig. 5

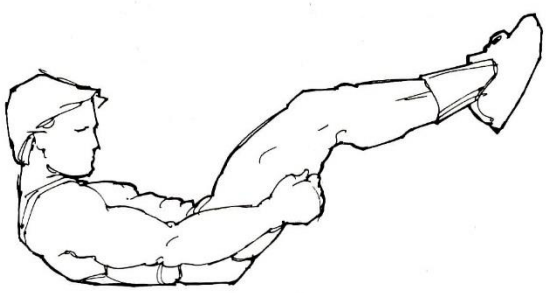
One of the unique features of the abdominal group is that either point of attachment can easily act as the fixed end or the moving end.

Growth occurs nearest the moving end of a muscle. This is why it is necessary to do separate upper and lower ab exercises. In upper ab exercises, the torso moves in relation to a stationary pelvis; in lower ab exercises, the pelvis moves in relation to a stationary torso.

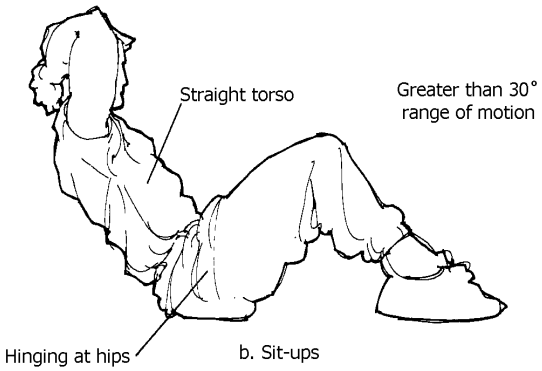
Three exercises in **Legendary Abs**—Hanging and Lying Leg Raises, and Knee Rock-Backs—are aimed specifically at the lower abs. In all three exercises, the upper body is fixed in position and the lower body (pelvis and legs) is acted on by moving end.

Abdominal Cramps[6] and 1/4 Sit-Ups are the principal upper ab motions in the program. In both, the lower body remains fixed in position while the upper body moves.

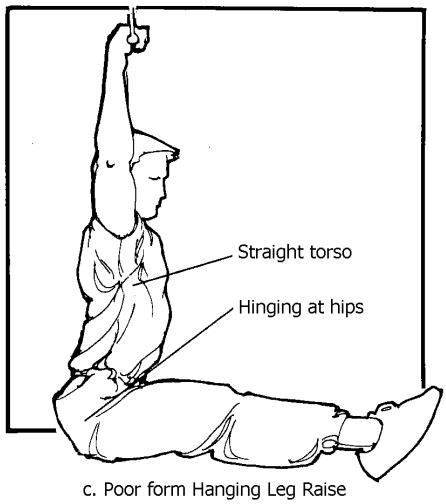
Essential in both upper and lower ab work is the "crunching" motion (Fig. 6-a). Part of the reason for the ineffectiveness of Sit-Ups and many other popular "ab" exercises is that they involve a *straight* torso hinging at the hip. In these exercises, the abs help stabilize the upper body, but since there's no crunch, they are not acting as prime mover. (Not to mention that all but the first thirty degrees of the sit-up exceeds the abs' range of motion!) (Fig. 6-b,c,d).



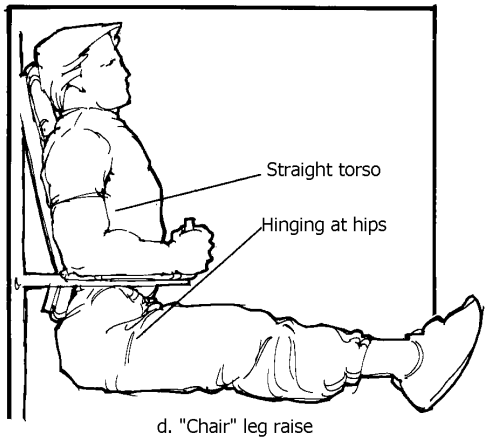
a. The "Crunch"



b. Sit-ups



c. Poor form Hanging Leg Raise



d. "Chair" leg raise

Obliques

external
Basic motion: twisting of the torso

internal
Basic motion: twisting of the torso; pulling hip toward centerline

The obliques function mainly as stabilizers. Although certain sports such as wrestling, boxing, and discus throw require extra-strong obliques, these are extreme functional strength needs. In most cases, the obliques get plenty of exercise just by stabilizing to torso and contributing to trunk flexion.

Legendary Abs includes one exercise, Twisting Ab Cramps, which focuses on both internal and external obliques. In the next section, you will learn how to tune into either muscle while performing that exercise.

In combination with the stabilization demands of the other exercises, Twisting Ab Cramps will provide ample oblique development in all but the extreme cases.

One common misconception about external oblique conditioning is that it is the answer to the "love handle" problem. Some people make the mistake of trying to "spot reduce" fat bulges from the sides of their waist by doing twisting exercises and side bends. This only makes the bulges worse, by building up muscle beneath the fat layer. Exercises to avoid: twisting or bending movements with weights—because **overloading the obliques virtually guarantees excessive development.**

If you find yourself developing muscular love handles from too much oblique work, the best thing to do is to stop any twisting ab exercise or side bends entirely. The muscles will eventually reduce in size, though slowly. Remember, reduction of excess fat in the oblique area calls for aerobic and dietary measures, not further development of the oblique muscles.

NOTE: The serratus anterior—the finger-like muscles on the sides of your rib cage—though not part of the abdominal group, contribute to the "look" of legendary abs. They are worked, to some extent, by the Pull-Down Ab Crunches described in the program, however, major pushing motions like Bench Press are the best way to increase serratus definition.

- **Growth occurs nearest the moving end of a muscle.**

- **Since either point of attachment of the abdominals can act as fixed or moving end, you must do some exercises with lower body at the moving end and some with upper body at the moving end to fully develop your midsection.**

- **The active ingredient in all ab exercises is a crunching motion in which the abs pull the rib cage and pubic bone together.**

- **The stabilization demands placed on the obliques by abdominal and other exercises, plus the demands imposed by Twisting Ab Crunches, are sufficient to insure optimum oblique development.**

- **Overworking the obliques can lead to development of muscular "love handles."**

MENTAL FOCUS

To sustain a high level of intensity in your workout, you must approach each exercise with the goal of directing a tightly-focused effort at a target muscle. Such an effort is only possible if you know, consciously, **where** the muscle is and **how it feels when it contracts**. This is *kinesthetic* sense, a mind-body connection essential to advanced training.

Visualizing the abdominal layers and their actions is the first step towards developing a keener kinesthetic sense.

Abdominals Versus Psoas

Specifically, visualization should help you distinguish between the **abdominals** and another muscle group you should remember from **Legendary Abs**—the **psoas** (Fig. 7). This is perhaps the most critical breakthrough you will make in your ab training. In most daily situations, the abs and psoas work together, but successful ab training must isolate the abs as much as possible.

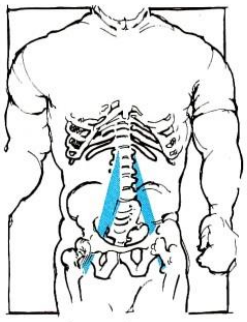


Fig. 7 The Psoas

Both abs and psoas, when they contract, cause a reduction in the angle on the front surface of the body. At first glance, this makes them *appear* to do the same thing.

But they don't, and many bad abdominal exercises are based on this misunderstanding.

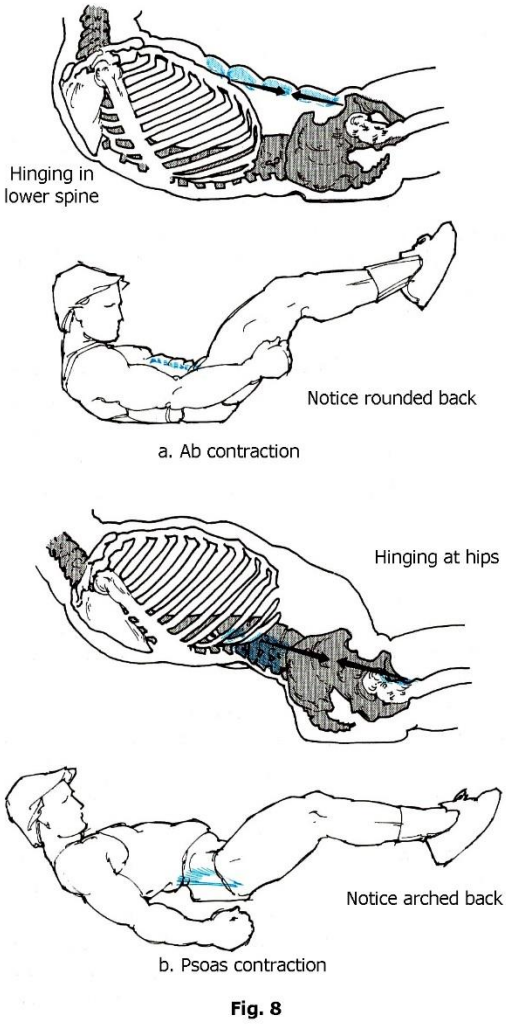


Fig. 8

The functional difference between the two muscles is their hinging points. As mentioned earlier, since the abs draw the ribs and pubic bone together, they cause the skeleton to hinge in the lower *spine* (Fig. 8-a). But the psoas run from your lower spine down to the inner surface of the femur (your thigh). When the psoas contract, they cause your body to hinge at the *hip* (Fig. 8-b).

From the standpoint of the pelvis, these two types of flexion are **oppositional**: the first results in a rounded back, the second induces a swayback. In a Lying Leg Raise, for example, a psoas contraction would pull on

the lower spine, causing it to arch (Fig. 8-b); this would stretch the abdominals and make it almost impossible for them to contract.

On the other hand, if the abs initiate the motion, the psoas can contribute to it without defeating the abdominal contraction. The psoas are needed to raise the legs; however, it's important to have a mental sense that the weight of your legs is being **supported by the contracted muscles of your abdomen** (Fig. 8-a).

The goal of leg raises is not to raise the legs, it's to rock the **pelvis** upward. The legs merely follow along to increase the load on the abs.

Attitude

Apart from understanding the difference between abdominal and psoas contractions, there is another side to the mental aspect of training to consider—**attitude**. An all-out, fully-committed effort causes actual physiological changes that simply walking through the exercise won't.

For instance, one of the main factors limiting a person's training is the accumulation within the muscle cells of waste products—chiefly lactic acid, which causes the familiar "burn." If you regularly ignore the burn and continue working, you can raise the threshold at which your muscle cells begin to form lactic acid, and increase the efficiency with which your body gets rid of it once it is formed.

You can then train with greater intensity, achieving greater results in less time.

- **Essential to optimum performance of Legendary and SynerAbs is coming to know and feel the difference between abdominal and psoas contractions.**
  - **Psoas contractions cause the body to hinge at the hip;**
  - **Ab contractions cause the body to hinge in the middle and lower spine.**
- **High intensity training causes physiological changes which allow you to achieve greater results in less time.**

Now that we've covered the basic mechanical system of the abdominals and factors contributing to exercise intensity, the upcoming exercise section will give you specific tips concerning the form of each exercise in the program.

THE EXERCISES

Each of the following exercises is described in basic form in **Legendary** and **SynerAbs**. This section will explore their fine points and describe modifications to make them **easier or harder**.

What do you mean, easier or harder? Isn't there a best way to do each exercise?

The goal is always to do an exercise with the best form possible, because this puts maximum stress on the target muscle. However, if you're not strong enough to do a particular exercise according to the form described in Legendary Abs, it can be modified—in other words, you can do some carefully calculated "cheating." That's the purpose of the sections that follow marked, "**To make it easier**." Use the tips in those sections to help you break a plateau or move up to a new level.

On the other hand, if an exercise is getting too easy, use the guidelines marked "**To make it harder**." They explain how to put maximum stress on the muscle without inducing any potentially damaging strain on the spine.

Lower Abdominal Exercises

Why do my lower abs seem to develop slower than my upper abs?

Because in lower ab training it is easier to unconsciously cheat! The psoas perform similar movements to the lower abs, and if leg raises are done incorrectly, the psoas can end up doing most or all of the work. Lower abs are not slower to develop than upper abs, they are simply more difficult to focus on.

Hanging and Lying Leg Raises make my back hurt.

Again, this is not unusual if your psoas become over-involved. Since the psoas are anchored to your lumbar vertebrae and hoist your legs by tugging on the spine, doing Leg Raises incorrectly—using the psoas instead of the abs—can induce lower back pain, and over time may cause injury.

How can I be sure it's my abs and not my psoas working?

If your lower back arches at all, your psoas are dominating the movement. If it remains flat or rounded, you can be fairly sure your abs are the prime mover.

HANGING LEG RAISES AND HANGING KNEE-UPS

Prime Mover: lower region of rectus (lower abs)

The question of abs versus psoas is the key point towards getting the most from both hanging exercises. It is impossible to completely eliminate psoas contribution, but by paying careful attention to your form you can keep it to a minimum. Specifically, make sure your pelvis rocks forward at the beginning of each rep and that you hinge at the lower spine, not at the hips (Fig. 9-a).

To make it easier. Although strict form dictates no swing during Hanging Leg Raises, quite often the lower abs are not strong enough to perform this exercise correctly, at least at first. If they aren't, they may allow your back to arch and the psoas to dominate. A slight swing can provide an assist, to force reps and build lower ab strength without sacrificing form.

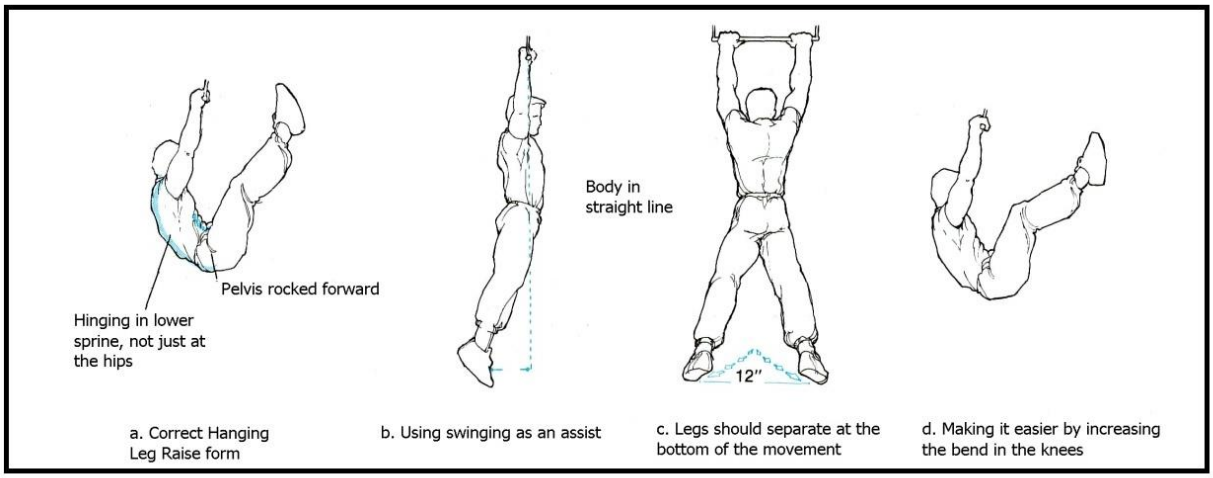

Pelvis rocked forward
Hinging in lower sprine, not just at the hips
Body in straight line
12"
a. Correct Hanging Leg Raise form
b. Using swinging as an assist
c. Legs should separate at the bottom of the movement
d. Making it easier by increasing the bend in the knees

Fig. 9

This technique will take nearly all of the stress off the lower back, aid you in focusing on the lower abs and smooth the transition from Level 1 to Level 2. Here's how to do it:

Step 1. As you lower your legs from the peak of a rep, allow their momentum to carry your body backwards six to twelve inches past the vertical point (Fig. 9-b). Important: Do not let your back arch as you do this. Your pelvis should remain tucked slightly forward; your legs, hips, and torso should all swing as a unit, in one solid piece. Allow your legs to separate at the bottom of the movement (Fig. 9-c). This will help you control the tendency to swing too far.

Step 2. As you swing forward, use the momentum to help raise your legs. Bend from the waist—not from the hips alone—and draw your legs and pelvis upwards together. Imagine you're trying to raise your pelvis first, and your legs are only along for the ride (Fig. 9-a).

If you swing too widely, the exercise will become too easy. Use as little swing as you can and still maintain proper form.

You can also make Hanging Leg Raises easier by increasing the bend in your knees (Fig. 9-d).

To make it harder.

- Use no swing at all.
- Maintain only a slight bend in your knees.
- Make the descending movement slower than the ascending movement.

If you have trouble hanging on to the bar while performing this exercise, consider buying a pair of weight trainer's straps (Fig. 10). Power Lifters use these to decrease the strain on their wrists when lifting hundreds of pounds. They are practical, inexpensive, and available from most sporting goods stores.

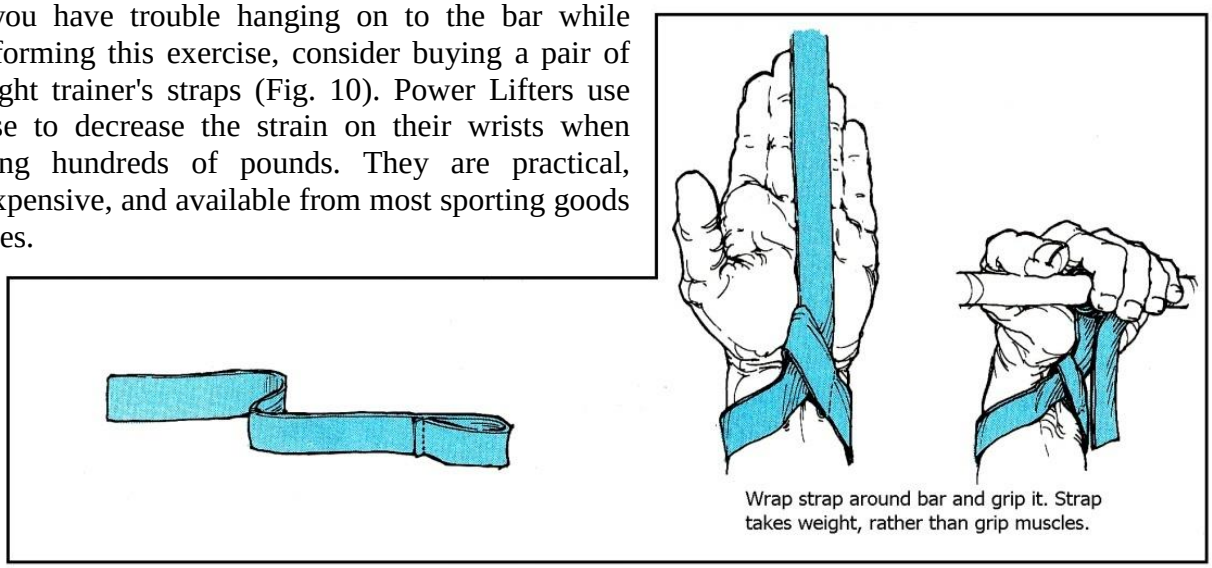


Fig. 10 Weight Training Straps

LYING LEG RAISES

Prime Mover: lower region of rectus abdominus (lower abs)

Many editions of Legendary Abs and SynerAbs contain two versions of Lying Leg Raises: regular and advanced. Our current research indicates it is more beneficial to do the advanced form exclusively, for three reasons:

- The advanced form is easier than the regular form to do correctly. Regular leg raises, because of their narrow range of motion, can be rendered almost totally ineffective if they are done wrong; usually they seem easier only because they are done wrong. Result: the beginner approaches them confidently, finds them "too easy," and is unable to progress to Hanging Leg Raises.

- The advanced form offers the potential for greater development, that is, you can more readily adjust it to make it easier or harder.

- The advanced form offers the opportunity to introduce a plyometric element. Plyometrics refers to the unique conditioning benefit obtained when you contract a muscle while it is lengthening and then continue contracting so that it shortens. For example, when jumping in place, the quadricep contraction absorbs the shock of landing (muscle lengthens) and propels the body upward again (muscle shortens). This special kind of contraction helps develop explosive power in the target muscles.

During an Advanced Lying Leg Raise, you can achieve a plyometric effect by rapidly slowing and reversing the direction of your legs at the bottom of each rep.

A Key Point: Back Flat!

Remember, whenever the lower back arches, abdominal benefit is lost. As you become stronger, contraction of the abdominals themselves will help prevent this. Meanwhile, there are two specific ways to avoid the tendency to arch:

The Cradle. Formed with your hands beneath your lower spine, the cradle is essential to the safety and effectiveness of Lying Leg Raises.

Use your hands to form a support that will elevate your hips and sacrum, and flatten your lumbar spine to the floor. One way is to make a fist with each hand and set them together, thumbs touching, beneath the upper portion of your buttocks on either side of your tailbone (Fig. 11-a). People are shaped differently, so experiment with various hand positions and angles. When you have it right, the weight of your pelvis will be resting on your knuckles, wrists and lower forearms, and your lower spine will be flat against the floor.

Elevation of head. Once your hips are elevated by the cradle, raise your head—and shoulders, if possible—slightly off the ground. This requires abdominal strength and will make the exercise much harder. In this position, it is virtually impossible for your back to arch, and you are guaranteed maximum ab involvement.

If you're not strong enough to raise your head and shoulders, start gradually. Raise only your head and do fewer reps. Five reps with good form are better than fifty without. Eventually, the strength will come.

Starting Position

Raise your legs about fourteen to eighteen inches off the floor—high enough that it's easy to keep your lower back flat. Bend your knees slightly. If you feel any tendency to arch your back, try a higher starting point, or increase the bend in your knees (Fig. 11-b). This will give your lower abs slightly better leverage so they can maintain a flat lower back.

Performing The Rep

Imagine your legs are welded to your pelvis at the hip, so that as you raise your legs, your pelvis hinges upward also. The hinge point should be your lumbar spine at about the level of your navel, not your hips. (Remember the abs don't attach to the legs, so just raising your legs is not an ab exercise.)

Rock your pelvis and legs upwards until your feet point straight up (Fig. 11-c). Imagine at this point they suddenly hit a wall and their momentum is deflected upwards. Give an upward thrust with your pelvis (Fig. 11-d). Drop straight down, and then allow your legs to return to the starting position. Overall, each rep should feel like a two-part motion, an arcing movement and a vertical thrusting movement. Keep the parts distinct: rock, thrust, drop pelvis, drop legs.

To make it easier. Start with your legs high (two to three feet from the ground) and accelerate on the way up, using the momentum to make the final thrust possible. Continue through the peak of the rep without a pause. As you drop your legs, keep their speed under control—keep the brakes on slightly—so the change of direction at the bottom is not too abrupt.

To make it harder. Use rhythm: The "up" motion should decelerate as it nears the top; it should hold for a second at the peak, and accelerate on the way down. The change of direction at the bottom should be sudden. **Concentrate on fully absorbing the momentum at the bottom of the rep with your abs, not with your back!** Try to achieve a slight rocking motion of the entire body so that as your legs drop, your head and shoulders rise—in a one-piece, see-saw motion, with your center body maintaining enough contraction that your back never arches (Fig. 11-e).

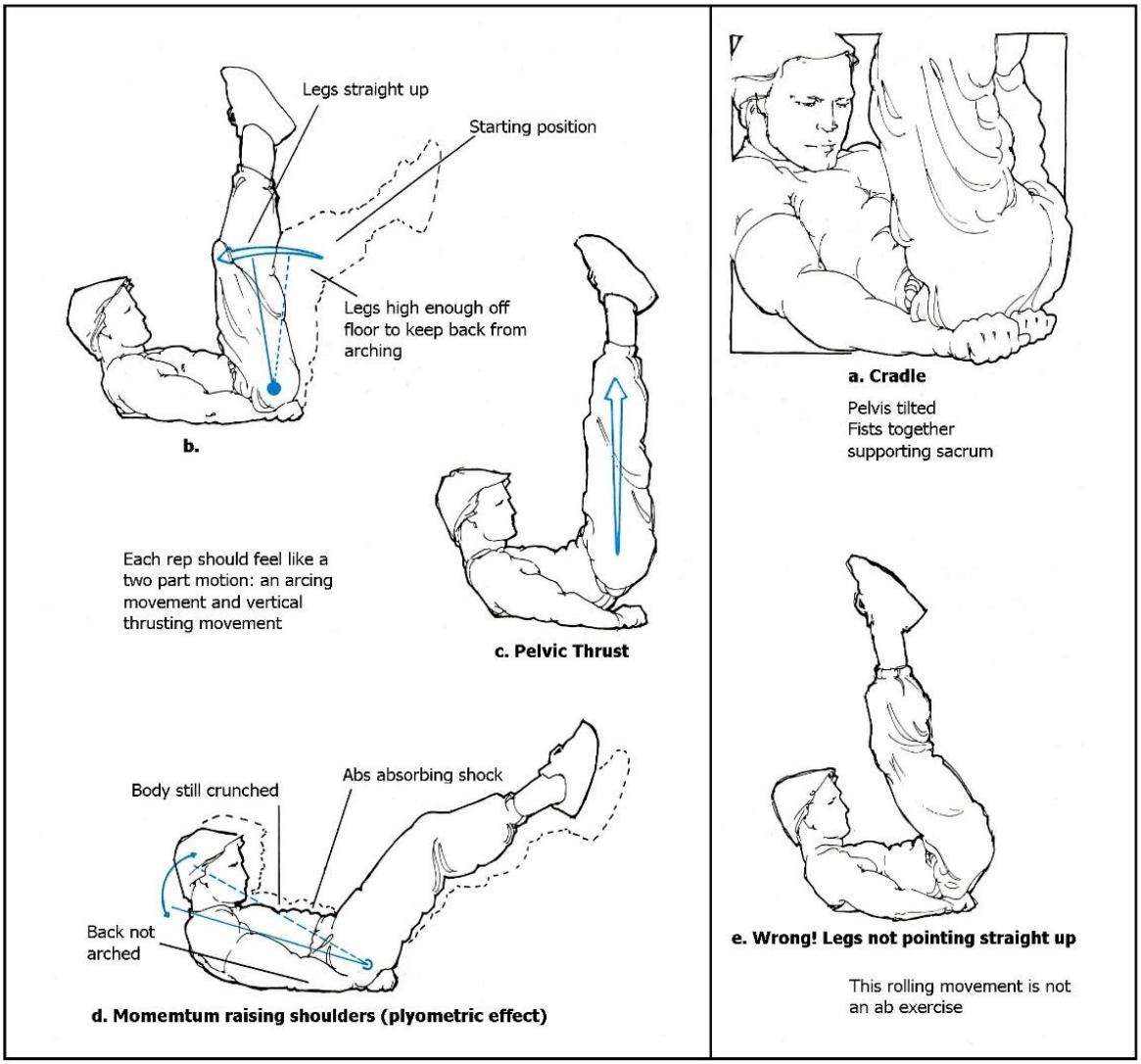

Legs straight up
Starting position
Legs high enough off floor to keep back from arching
b.
Each rep should feel like a two part motion: an arcing movement and vertical thrusting movement
c. Pelvic Thrust
Body still crunched
Abs absorbing shock
Back not arched
d. Momemtum raising shoulders (plyometric effect)
a. Cradle
Pelvis tilted
Fists together
supporting sacrum
e. Wrong! Legs not pointing straight up
This rolling movement is not an ab exercise

Fig. 11

KNEE ROCK-BACKS

Prime Mover: upper and lower rectus abdominus

The purpose of Knee-Rock Backs is to "finish off" both upper and lower abs at the end of the routine. It is a plyometric motion—involving sudden changes of direction—which spans the entire range for the upper and lower abs. This exercise will help increase the intensity of the higher levels of the course.

The Starting Position

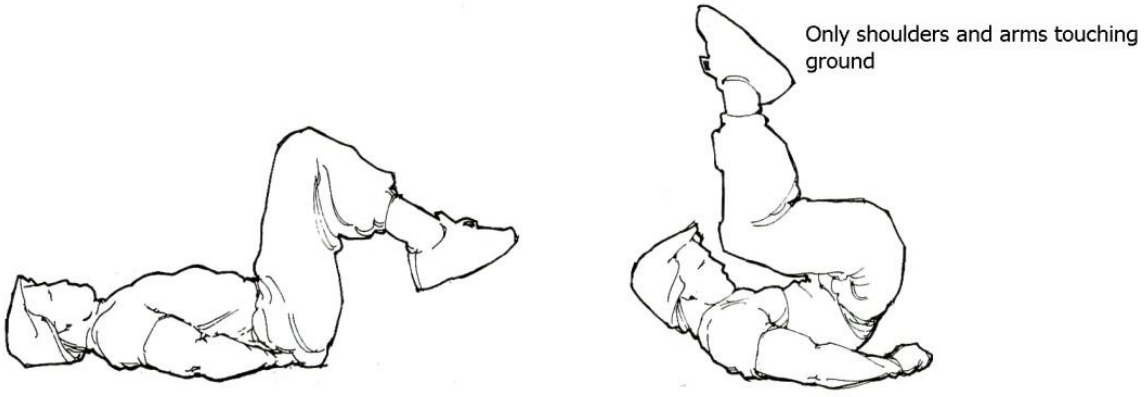
. . . is similar to that of Lying Leg Raises, except your knees are bent almost to a right angle, and, as a result, your feet are about a foot and a half off the floor (Fig. 12-a). As in Leg Raises, form a cradle with your hands to support your lower spine (see description of the cradle on page 14).

Performing the Rep

Rock your feet up over your head. At the peak of the motion, only your shoulders (and arms) will be touching the ground (Fig. 12-b). Rock your feet down again. When they reach their starting level, forcefully reverse their direction and begin another rep.

Several points to observe:

- Make the change of direction at the "bottom" of each rep abrupt. It should feel like a bounce. As during Lying Leg Raises, however, your back should not arch!
- Try not to push against the ground with your arms at the top of the rep; the force for the movement should come from your abs. Concentrate on feeling an abdominal crunch.
- Visualize the crunch traveling up and down the length of the rectus, like a wave, as you rock.



a. Starting position **b. Finish**

Internal and External Obliques

CROSS-KNEE CRUNCHES (LYING TORSO TWISTS)

Prime Mover: external and internal obliques

Two aspects of this motion function together to provide a workout for both internal and external obliques. In trying to perfect your form, it's a good idea to consider these two aspects separately to be certain neither is overlooked.

Starting Position

Lying on your back, knees drawn up, feet flat on the floor, hands raised near head. Note: This exercise works better if the hands are not clasped behind the head, but simply raised on either side of the head. This allows the upper body to be more flexible, and decreases the tendency to pull on the back of the head.

Performing the Rep

Aspect #1 — Torso rotation

External (Plus some Internal) Oblique Contraction

As you lift your head and shoulders from the floor, the chest is rotated about forty-five degrees to one side. If you're turning to the right, you should feel the contraction somewhere to the left of the centerline, running from your ribs down to about your waist. Try using the palm of your right hand to feel the left external oblique contracting. Adjust the angle of your body until you feel the maximum contraction. Then turn to your left and use your left hand to feel for a contraction in the muscles to the right of the centerline (Fig. 13-a). The more twist you can achieve, the more pronounced the contraction will be.

To get a better sense of the external oblique, use your palm to feel the difference between twisting the torso and raising it straight up (a contraction primarily of the rectus abdominus). Work at both of these until you feel a difference, and strive to make that difference as big as possible.

Aspect #2 — Hip elevation

Internal Oblique Contraction

Once you've successfully felt an external oblique contraction, lie flat in the starting position once again. Press lightly with your fingers just above the pelvic bone on both sides of your waist. Raise your right hip from the floor and lower it again. You should feel a distinct contraction in the muscle beneath your right hand. Since contracting the gluteus muscles can also cause the hip to lift, make sure your buttocks are relaxed. One way to help isolate the internal oblique is to lift your left foot an inch or two from the floor at the same time you lift your right hip (Fig. 13-b).

Only after you've developed a kinesthetic sense of the difference between internal and external oblique contractions should you combine them as explained in the exercise description.

To make it harder. Lift the foot on the side of the body on which the internal oblique is contracting. In other words, when twisting left, raise your left foot (about one inch), and vice versa (Fig. 13-c).

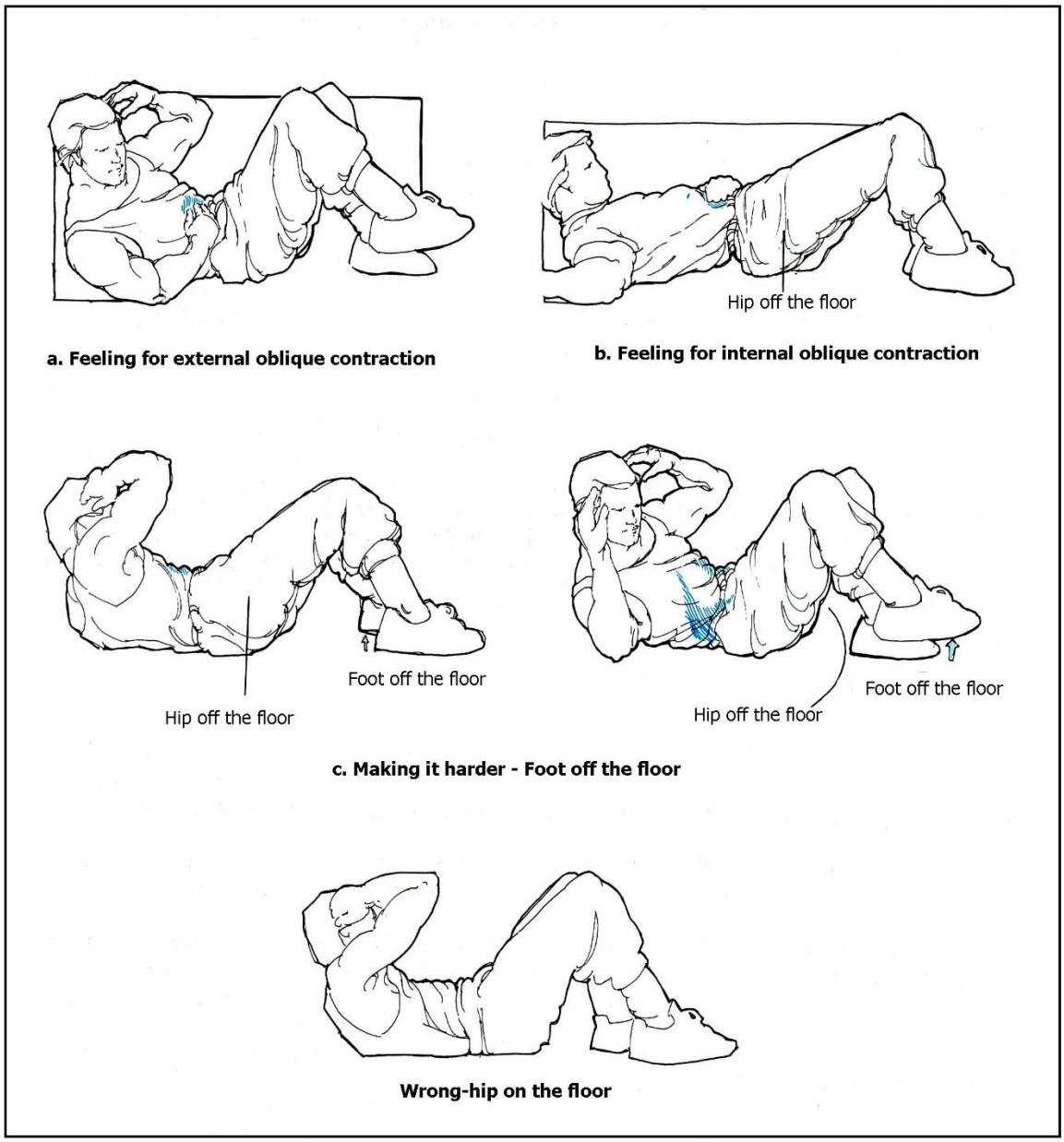

Hip off the floor
a. Feeling for external oblique contraction
b. Feeling for internal oblique contraction
Foot off the floor
Hip off the floor
Foot off the floor
Hip off the floor
c. Making it harder - Foot off the floor
Wrong-hip on the floor

Fig. 13

Upper Ab Exercises

ABDOMINAL CRAMPS (LYING TORSO LIFTS)

Prime Mover: upper region of rectus abdominus (upper abs)

This exercise is aimed at the upper portion of the rectus abdominus. There are two ways it can be performed and each achieves slightly different results.

Starting Position

In either case, you begin the same way: lying on back, with knees drawn up, feet flat on the floor, hands behind head (Fig. 14-a).

Performing The Rep

Version 1. The head, neck, and shoulders are raised in a crunching motion, as though you are trying to touch your chin to your navel (Fig. 14-b).

Version 2. The head, neck, and shoulders are raised vertically as though a string is attached to your sternum, pulling you straight up (Fig. 14-c).

Each version focuses the stress on a slightly different part of the muscle. In the first version, the uppermost region causes the motion. In the second version, the uppermost region acts only as stabilizer; the motion is the result of contraction several inches lower. Therefore, in the second version, the lower region of the upper abdominals works harder.

Ab Cramps with crunch ⟶ Uppermost region of upper abs

Ab Cramps with vertical lift ⟶ Lower region of upper abs

Which version should you do? Ideally, both—in equal parts. Since 1/4 Sit-Ups may also be performed with a crunch or a vertical lift, we suggest doing Cramps one way and 1/4 Sit-Ups the other. It is not advisable to vary within the exercise.

To make it harder. Legendary Abs calls for Ab Cramps to be done as crunches, and 1/4 Sit-Ups to be done as a vertical lift. This is the more difficult of the two choices.

Also, a five or ten pound plate may be held behind the head to increase the overload and make the exercise harder. Do not increase much above the recommended five to ten pound load or you run the risk of increasing abdominal size as well as definition.

To make it easier. Reverse the form specified in the program: Do Cramps with a vertical lift and 1/4 Sit-Ups with a crunch.

Other points:

- Raising your shoulders means actually lifting your shoulder blades, not just rounding your shoulders forward as you lift your neck. **Until some part of the rib cage leaves the ground, you're not exercising your abs!**

- **Speed of reps** is a major factor contributing to the intensity of this exercise. For maximum overload, do each rep slowly (two seconds per rep) pausing for a beat at the peak of the motion.

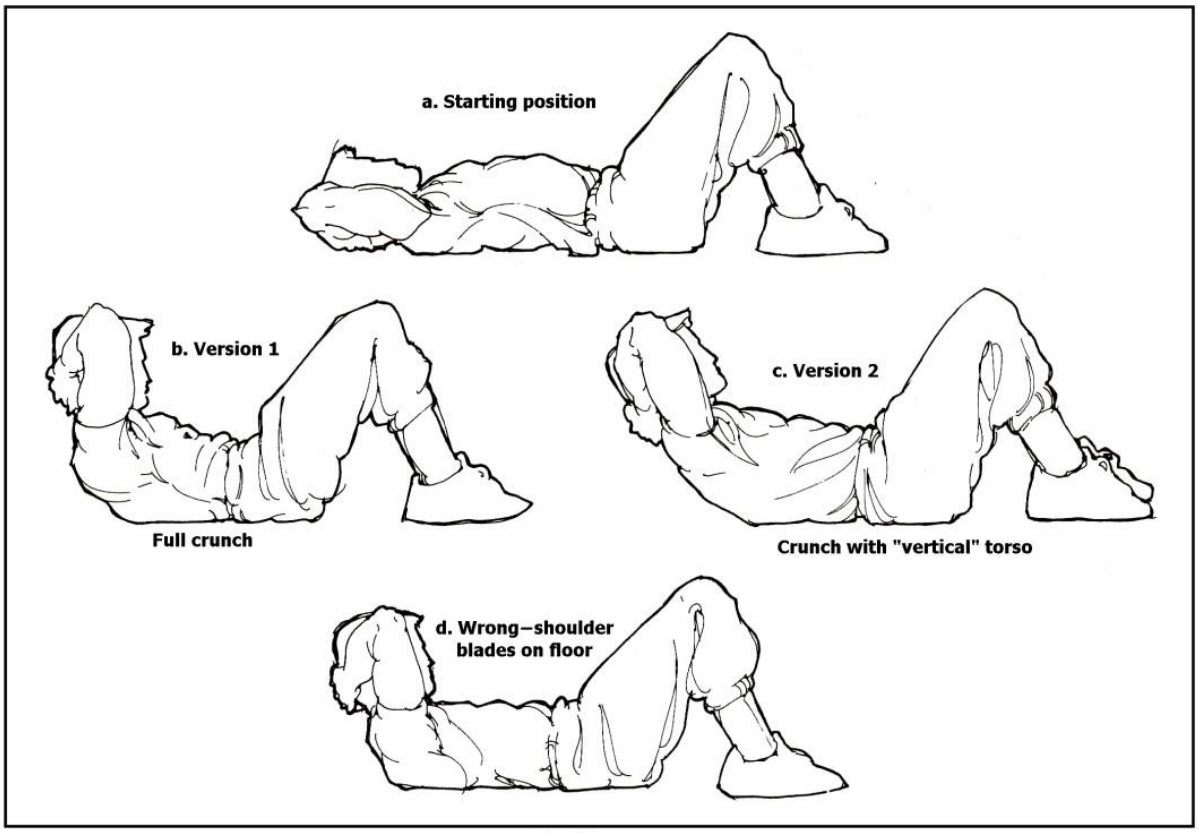


Fig. 14

1/4 SIT-UPS

Prime Mover: upper region of the rectus abdominus (upper abs)

As mentioned above, 1/4 Sit-Ups may either be done as a crunch or a vertical lift, depending on the level of difficulty you wish to achieve in the routine. Whichever way you choose, do your Ab Cramps the **opposite** way, so as to work all parts of the upper abs.

The other critical point of form concerning 1/4 Sit-Ups is the exact position of the legs. Although the exercise clearly calls for a right angle at the hip and the knee (Fig. 15-a), it is easy to let the legs drift while cranking out reps. Don't let this happen! **The slightest change in the angle of the legs can drastically reduce the effectiveness of this exercise**.

If the angle of your hip is **less than ninety degrees**. (Fig. 15-b), the exercise becomes markedly easier as the weight of your legs is taken off the lower abs.

If the angle of your hip is **greater than ninety degrees** (Fig. 15-c), the load on your lower abs is increased. The exercise becomes much more difficult, and tends to induce an arch in the lower back.

The optimum form—and the one we strongly recommend—is with the legs precisely at a right angle. This provides the best balance of safety versus effectiveness.

To make it easier or harder. The angle of the legs may be deliberately varied within **a narrow range** (not more than 1 or 2 inches), according to an individual's needs.

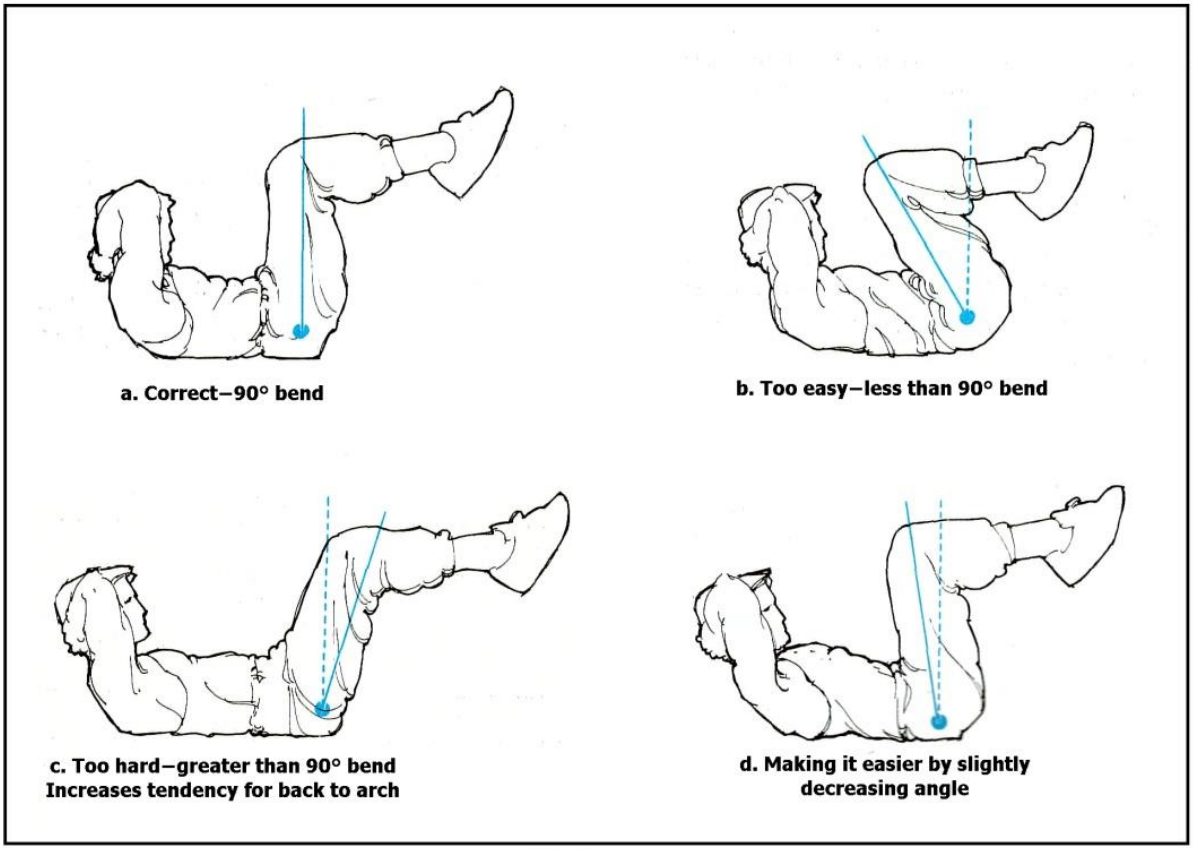

a. Correct–90° bend
b. Too easy–less than 90° bend
c. Too hard–greater than 90° bend
Increases tendency for back to arch
d. Making it easier by slightly
decreasing angle

Fig. 15

PULL DOWN AB CRUNCHES

Prime Mover: upper region of rectus abdominus
Synergists: serratus anterior

Pull-Down Ab Crunches are not part of the basic Legendary Abs and SynerAbs program. However, if you have access to a lat pull-down machine, you can include the exercise to increase the routine's intensity.

It can be used:

- with a constant load, to add to the intensity of a training program aimed at greater definition;
- with a gradually increasing load, as part of an overall effort to gain size

Starting Position

Kneel about eighteen inches out from the spot directly below the overhead pully. The cable should travel at a slight angle away from the machine to your hands.

To fully involve the serratus anterior (the finger-like muscles on the sides of your ribcage), your forearms should be as close together as possible as you perform the exercise. This is best achieved by using a "Y"-shaped rope grip attached to the cable, or by holding on to the ends of a towel draped over a lat bar (Fig. 16-a).

Performing the Rep

Try to achieve the same motion as in lying Ab Crunches—specifically, the same crunch in the upper abs. Remember, the abs only have a thirty degree range of motion, so, **contrary to the usual way you see the exercise done, don't pull the rope all the way down to the floor (Fig. 16-b)**. Pull down as though you are trying to hunch your shoulders and chest over a bar. Your torso should hinge in your middle and lower spine, not at your hip (Fig. 16-c).[2]

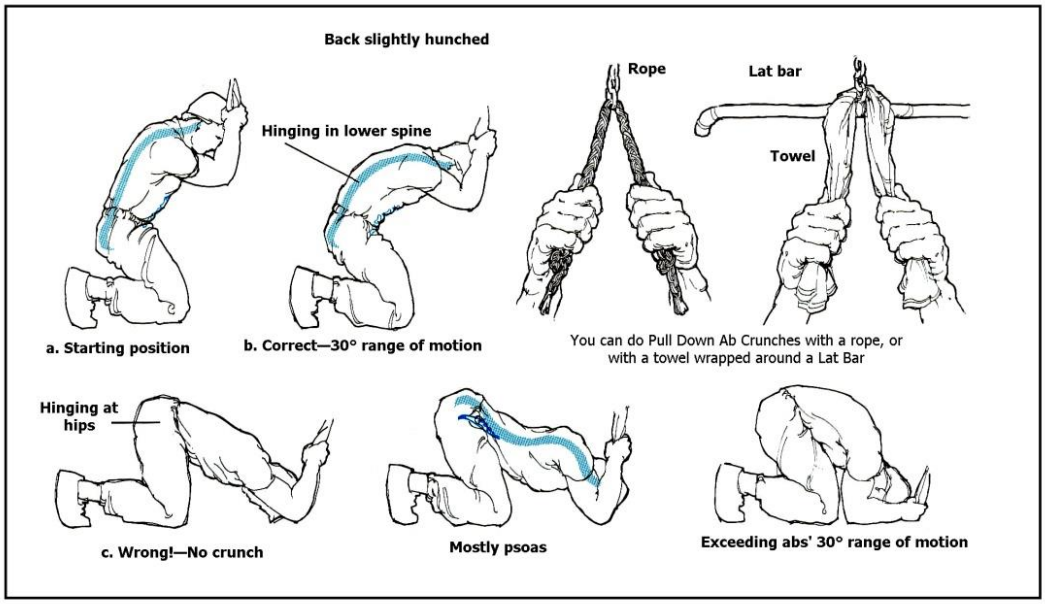

Back slightly hunched
Hinging in lower spine
a. Starting position
b. Correct—30° range of motion
Rope
Lat bar
Towel
You can do Pull Down Ab Crunches with a rope, or with a towel wrapped around a Lat Bar
Hinging at hips
c. Wrong!—No crunch
Mostly psoas
Exceeding abs' 30° range of motion

Fig. 16

[2]Older editions of Legendary and SynerAbs suggest bringing your hands all the way down to the floor. Our research indicates the form described above is more effective.

OTHER TRAINING CONSIDERATIONS

Schedule

Can I do the routines every day? How about twice a day?

Contrary to popular belief, more is not better—even in the case of abdominal training. Doing the program twice per day, or five times per week, or with higher numbers of reps than those specified will not increase your rate of progress. In fact, any of those can lead to diminished results due to insufficient recovery time for the ab muscles.

What's important is to give the program all you've got during those six minutes you devote to it. Then relax and let your body do the work. Remember, muscles grow while you are resting, not exerting!

Progressive Overload

If I'm training for size, how do I incorporate the use of weights into the program?

Weights ranging from one to twenty-five pounds may be used during several of the exercises:

- ☐ Behind the head during Cramps (Torso Lifts) and Cross-Knee Cramps (Twisting Torso Lifts).
- ☐ On the ankles during Hanging and Lying Leg Raises. (Be sure the weight added to your ankles does not induce your back to arch.)
- ☐ During Pull-Down Ab Crunches. (This exercise, of course, always involves weight. It will also probably involve more than twenty-five pounds.)

If you are training for size, follow the standard rep guidelines for overload: six to eight reps per set. This means you will ignore the rep numbers listed in the program for the particular exercises you add weight to. Use a weight between one and twenty-five pounds.

If you are training for definition and not size, you may still wish to use small amounts of weight during some of these exercises, while maintaining the higher rep numbers specified in the routines. **Only if you are interested in gaining size should you progressively increase the amount of weight used**. Even then, be aware that small increases in weight will make a big difference. If you have a wide variety of plates, move up by the smallest increment possible—ideally, one to three pounds at a time.

And there you have it! We recommend you read through Beyond several times and think carefully about the details explained herein. Then, work through the exercises, experimenting to become familiar with the optimum way to perform them.

Finally, do the entire Legendary or SynerAbs program (whatever level you're on) incorporating what you have learned. We guarantee it will be a new experience for you!

Happy Training.